

WHAT IS CLAIMED:

1. A parameter setting apparatus for setting a recording parameter for use in optical information recording on a recording medium, by use of any one of a plurality of setting areas previously provided on the recording medium, the apparatus comprising:

a checking device for checking whether a special detected signal is optically detected or not from the setting areas;

a retrieving device for retrieving a non-used area that is the setting area where no special detected signal is detected, of the setting areas, based on the check result of the checking device;

a mark signal recording device for optically recording a mark signal for obtaining the special detected signal optically, in the detected non-used setting area;

a setting signal recording device for recording a setting signal for setting the recording parameter, at least, in the non-used setting area excluding an area where the mark signal is recorded; and

a setting device for setting the recording parameter by optically detecting the recorded setting signal.

2. The parameter setting apparatus according to Claim 1, wherein the mark signal recording device records the mark signal at a position detected prior to the setting signal recorded in the non-used setting area.

3. The parameter setting apparatus according to Claim 1, wherein

the mark signal recording device repeats the recording of the mark signal at a predetermined interval during the recording of the setting signal.

5 4. The parameter setting apparatus according to Claim 2, wherein the mark signal recording device repeats the recording of the mark signal at a predetermined interval during the recording of the setting signal.

10 5. The parameter setting apparatus according to Claim 3, wherein the checking device further comprises:

a position retrieving device for retrieving a predicted position of the setting area on the recording medium where the special detected signal is to be optically detected;

15 a first moving device for moving an executing device for detecting the setting signal and the special detected signal, from the retrieved predicted position, to a retrieval starting position on the recording medium distant from there at least by a distance corresponding to the predetermined interval; and

20 a second moving device for repeating an operation of further moving the executing device again from the special detected signal-detected position on the recording medium to a position on the recording medium distant from there at least by a distance corresponding to the predetermined interval, when the special detected  
25 signal is detected while the executing device is moved from the retrieval starting position to the predicted position, and further moving the executing device to the predicted position, from a position of the

executing device after the above further moving used as the retrieval starting position, so as to check whether the special detected signal is detected or not; and

the retrieving device regards the setting area adjacent to the setting area where the special detected signal detected last is recorded as the non-used setting area, when none of the special detected signal is detected while the executing device is moved from the retrieval starting position to the predicted position.

6. The parameter setting apparatus according to Claim 1, wherein the recording parameter is intensity of an optical beam for use in the information recording.

7. The parameter setting apparatus according to Claim 1, further comprising  
a recording device for executing the information recording by use of the set recording parameter.

8. A parameter setting method for setting a recording parameter for use in optical information recording on a recording medium, using any one of a plurality of setting areas previously provided on the recording medium, the method comprising:

a checking process for checking whether a special detected signal is optically detected or not from the setting areas;

a retrieving process for retrieving a non-used area that is the setting area where no special detected signal is detected, of the setting areas, based on the check result in the checking process;

a mark signal recording process for optically recording a mark signal for obtaining the special detected signal optically, in the detected non-used setting area;

5 a setting signal recording process for recording a setting signal for setting the recording parameter, at least, in the non-used setting area excluding an area where the mark signal is recorded; and

a setting process for setting the recording parameter by optically detecting the recorded setting signal.

10 9. The parameter setting method according to Claim 8, wherein in the mark signal recording process, the mark signal is recorded at a position detected prior to the setting signal recorded in the non-used setting area.

15 10. The parameter setting method according to Claim 8, wherein in the mark signal recording process, the recording of the mark signal is repeated at a predetermined interval during the recording of the setting signal.

20 11. The parameter setting method according to Claim 9, wherein in the mark signal recording process, the recording of the mark signal is repeated at a predetermined interval during the recording of the setting signal.

25 12. The parameter setting method according to Claim 10, wherein the checking process further comprises:

a position retrieving process for retrieving a predicted position of the setting area on the recording medium where the special detected signal is to be optically detected;

5 a first moving process for moving an executing device for detecting the setting signal and the special detected signal, from the retrieved predicted position, to a retrieval starting position on the recording medium distant from there at least by a distance corresponding to the predetermined interval; and

10 a second moving process for repeating an operation of further moving the executing device again from the special detected signal-detected position on the recording medium to a position on the recording medium distant from there at least by a distance corresponding to the predetermined interval, when the special detected signal is detected while the executing device is moved from the retrieval  
15 starting position to the predicted position, and further moving the executing device to the predicted position, from a position of the executing device after the above further moving used as the retrieval starting position, so as to check whether the special detected signal is detected or not; and

20 in the retrieving process, the setting area adjacent to the setting area where the special detected signal detected last is recorded, is regarded as the non-used setting area, when none of the special detected signal is detected while the executing device is moved from the retrieval starting position to the predicted position.

25 13. The parameter setting method according to Claim 8, wherein

the recording parameter is intensity of an optical beam for use in the information recording.

14. The parameter setting method according to Claim 8, further comprising

a recording process for executing the information recording by use of the set recording parameter.

15. An information recording medium in which a setting program is recorded in a readable way by a setting computer, which is included in a recording parameter setting apparatus for setting a recording parameter for use in optical information recording on the recording medium, using any one of a plurality of setting areas previously provided on the recording medium, the setting program causing the setting computer to function as:

a checking device for checking whether a special detected signal is optically detected or not from the setting areas;

a retrieving device for retrieving a non-used area that is the setting area where no special detected signal is detected, of the setting areas, based on the check result of the checking device;

a mark signal recording device for optically recording a mark signal for obtaining the special detected signal optically, in the detected non-used setting area;

a setting signal recording device for recording a setting signal for setting the recording parameter, at least, in the non-used setting area excluding an area where the mark signal is recorded; and

a setting device for setting the recording parameter by optically detecting the recorded setting signal.

16. The information recording medium according to Claim 15,  
5 wherein

the mark signal recording device records the mark signal at a position detected prior to the setting signal recorded in the non-used setting area.

10 17. The information recording medium according Claim 15, wherein  
the mark signal recording device repeats the recording of the mark signal at a predetermined interval during the recording of the setting signal.

15 18. The information recording medium according Claim 16, wherein  
the mark signal recording device repeats the recording of the mark signal at a predetermined interval during the recording of the setting signal.

20 19. The information recording medium according to Claim 17,  
wherein

the checking device further comprises:

a position retrieving device for retrieving a predicted position of the setting area on the recording medium where the special detected  
25 signal is to be optically detected;

a first moving device for moving an executing device for detecting the setting signal and the special detected signal, from the retrieved

predicted position, to a retrieval starting position on the recording medium distant from there at least by a distance corresponding to the predetermined interval; and

a second moving device for repeating an operation of further moving the executing device again from the special detected signal-detected position on the recording medium to a position on the recording medium distant from there at least by a distance corresponding to the predetermined interval, when the special detected signal is detected while the executing device is moved from the retrieval starting position to the predicted position, and further moving the executing device to the predicted position, from a position of the executing device after the above further moving used as the retrieval starting position, so as to check whether the special detected signal is detected or not; and

the retrieving device regards the setting area adjacent to the setting area where the special detected signal detected last is recorded as the non-used setting area, when none of the special detected signal is detected while the executing device is moved from the retrieval starting position to the predicted position.

20. The information recording medium according to Claim 15, wherein

the recording parameter is intensity of an optical beam for use in the information recording.

21. The information recording medium according Claim 15,, wherein the setting program further causes the setting computer to function as:



a recording device for executing the information recording by use of the set recording parameter.

22. A computer data signal embodied in a carrier wave and  
5 representing a sequence of instructions, which is executed by a setting  
computer, which is included in a recording parameter setting  
apparatus for setting a recording parameter for use in optical  
information recording on the recording medium, using any one of a  
plurality of setting areas previously provided on the recording medium,  
10 said instructions comprising the steps of:

checking whether a special detected signal is optically detected  
or not from the setting areas;

retrieving a non-used area that is the setting area where no  
special detected signal is detected, of the setting areas, based on the  
15 check result of the step of checking;

optically recording a mark signal for obtaining the special  
detected signal optically, in the detected non-used setting area;

recording a setting signal for setting the recording parameter, at  
least, in the non-used setting area excluding an area where the mark  
20 signal is recorded; and

setting the recording parameter by optically detecting the  
recorded setting signal.

23. The computer data signal embodied in a carrier wave and  
25 representing a sequence of instructions according to Claim 22, wherein

the step of optically recording the mark signal records the mark signal at a position detected prior to the setting signal recorded in the non-used setting area.

5 24. The computer data signal embodied in a carrier wave and representing a sequence of instructions according Claim 22, wherein

the step of optically recording the mark signal repeats the recording of the mark signal at a predetermined interval during the recording of the setting signal.

10

25. The computer data signal embodied in a carrier wave and representing a sequence of instructions according Claim 23, wherein

the step of optically recording the mark signal repeats the recording of the mark signal at a predetermined interval during the recording of the setting signal.

15

26. The computer data signal embodied in a carrier wave and representing a sequence of instructions according to Claim 24, wherein

the step of checking further comprises the steps of:

20

retrieving a predicted position of the setting area on the recording medium where the special detected signal is to be optically detected;

moving an executing device for detecting the setting signal and the special detected signal, from the retrieved predicted position, to a retrieval starting position on the recording medium distant from there at least by a distance corresponding to the predetermined interval; and

25

repeating an operation of further moving the executing device again from the special detected signal-detected position on the recording medium to a position on the recording medium distant from there at least by a distance corresponding to the predetermined interval, when the special detected signal is detected while the executing device is moved from the retrieval starting position to the predicted position, and further moving the executing device to the predicted position, from a position of the executing device after the above further moving used as the retrieval starting position, so as to check whether the special detected signal is detected or not, and

the step of retrieving the non-used area regards the setting area adjacent to the setting area where the special detected signal detected last is recorded as the non-used setting area, when none of the special detected signal is detected while the executing device is moved from the retrieval starting position to the predicted position.

27. The computer data signal embodied in a carrier wave and representing a sequence of instructions according to Claim 22, wherein the recording parameter is intensity of an optical beam for use in the information recording.

28. The computer data signal embodied in a carrier wave and representing a sequence of instructions according to Claim 22, wherein said instructions further comprises the step of executing the information recording by use of the set recording parameter.